

Memorandum



CITY OF DALLAS

DATE March 20, 2015

TO Honorable Members of the Quality of Life & Environment Committee: Dwaine R. Caraway (Chair)
Sandy Greyson (Vice Chair), Adam Medrano, Rick Callahan, Carolyn R. Davis, Lee M. Kleinman

SUBJECT 2015 Mosquito Abatement Plan

On Monday, March 23, 2015, the Quality of Life & Environment committee will be briefed on the 2015 Mosquito Abatement Plan. The briefing is attached for your review.

Please contact me if you have any questions.

A handwritten signature in blue ink that reads "Joey Zapata".

Joey Zapata
Assistant City Manager

Attachment

c: Honorable Mayor and Members of the City Council
A.C. Gonzalez, City Manager
Warren M.S. Ernst, City Attorney
Craig D. Kinton, City Auditor
Rosa A. Rios, City Secretary
Daniel F. Solis, Administrative Judge
Ryan S. Evans, First Assistant City Manager

Eric D. Campbell, Assistant City Manager
Jill A. Jordan, P.E., Assistant City Manager
Mark McDaniel, Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Sana Syed, Public Information Officer
Elsa Cantu, Assistant to the City Manager – Mayor & Council

2015 Mosquito Abatement Plan

QUALITY OF LIFE &
ENVIRONMENT COMMITTEE

MARCH 23, 2015



Outline

- Background
- West Nile Virus (WNV) and Chikungunya (CHIKV) Action Plans
- Public Education
- Mosquito Surveillance
- Environmental Mitigation
- Spray and Notification
- Additional Preparedness Efforts

Background

Mosquito Abatement Unit of Code Compliance

- The City follows Centers for Disease Control and Prevention (CDC) guidance to conduct public education, monitoring, surveillance and treatments to guard against mosquito-borne diseases
- The City partners with Dallas County to act as the Health Authority as well as the State and the Centers for Disease Control (CDC)
- April 1 – October 31 is our active season and this briefing serves to update Quality of Life & Environment Committee

Background

Mosquito Abatement Unit of Code Compliance

- Deploy traps and collect samples for testing
- Treat standing water with larvicide when it cannot be drained
- Issue a Notice of Violation (NOV) to correct stagnant pools – treat if home is unoccupied
- Conduct ground-based spraying on positive test results
- Educate citizens on preventive measures
- Train other departments in the City to increase awareness of standing water

Background

WNV

- Detected in North America in 1999
- Arbovirus transmitted to people by mosquitoes
- *Culex* species mosquitoes transmit WNV
- WNV cycles between mosquitoes and birds
- Mosquitoes most active from dusk to dawn

Background

WNV

- Symptoms
 - 70% - 80% of people who become infected with WNV do not develop any symptoms
 - About 1 in 5 people infected will develop a fever with other symptoms such as headache, body aches, joint pains, vomiting, rash, etc.
 - Less than 1% develop a serious neurologic illness
 - 10% of people who develop neurologic illness may die
- Treatment
 - No antiviral medicines to treat WNV

Background

WNV Human Cases, Dallas County

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total Cases	104	23	9	16	0	2	398	16	10
WNV Human Deaths	4	0	0	1	0	0	21	2	0

Background

WNV Human Cases, Dallas County & City of Dallas

WNV Cases	2012	2013	2014
Dallas County	398	16	10
City of Dallas	211	7	8

WNV Deaths	2012	2013	2014
Dallas County	21	2	0
City of Dallas	9	1	0

Background

CHIKV

- Disease found in the Americas on islands in the Caribbean in late 2013
- Reportable disease in 2015
- 11 confirmed cases in Dallas County (imported) – no reports of locally-acquired cases
- Viral disease transmitted to people by mosquitoes
- *Aedes* species mosquitoes transmit Chikungunya virus
- Same type of mosquito that transmits dengue virus
- *Aedes* species are aggressive daytime biters, with peak feeding at dusk and dawn

Background

CHIKV

- Symptoms
 - Appear 3-7 days after being bitten by an infected mosquito
 - Fever and severe joint pains common symptoms
 - Other symptoms include headaches, muscle pain, joint swelling or rash
 - Deaths are rare
- Treatment
 - No antiviral medicines to treat CHIKV
 - There are medicines to help reduce fever and pain

2015 Mosquito Abatement Action Plan

Primary Focus – Proactive Prevention

Action	2015 Plan
Public information	Radio, television, billboards, Internet, phone calls, water bill inserts, neighborhood outreach & free mosquito dunks to City of Dallas residents.
Standing water complaint turnaround	Respond within 1 day
Mosquito traps	90 traps
Lab results turnaround	3-5 days for PCR only and 5 to 7 days for cell cultures.
Action Thresholds plan	Joint plan is in place and will be updated as needed in coordination with Dallas County.
Truck-mounted sprayers	5 Trucks
Emergency Management Plan	To be implemented during declared emergency.
Aerial spraying plan	Guidance from Dallas County and the CDC.

Public Education

WNV & CHIKV public education efforts

- Billboards and radio spots
- Social media, Internet and e-mail blasts
- News releases
- Street median signs and outreach at community meetings and events
- Free mosquito dunks to City of Dallas residents
- Water conservation outreach
- Special traps

Public Education

Emphasize the “4-Ds” of prevention

- Drain or treat standing water
 - Empty flower pots, bird baths, wading pools, etc.
 - A teaspoon of water can serve as a breeding place for mosquitoes
- Avoid outdoor activity at Dawn/Dusk
- Use mosquito repellent (DEET)
 - Follow label instructions
- Dress with long sleeves, pants

Mosquito Surveillance

Mosquito trapping and testing

- Maintain 90 traps on a weekly basis during mosquito season (May-Oct)
- 45 traps sent to Dallas County Health & Human Services (DCHHS) per week
- 45 traps sent to the Texas Department of State Health Services (DSHS) per week (includes testing for CHIKV)

2015 Gravid Trap Recommendations

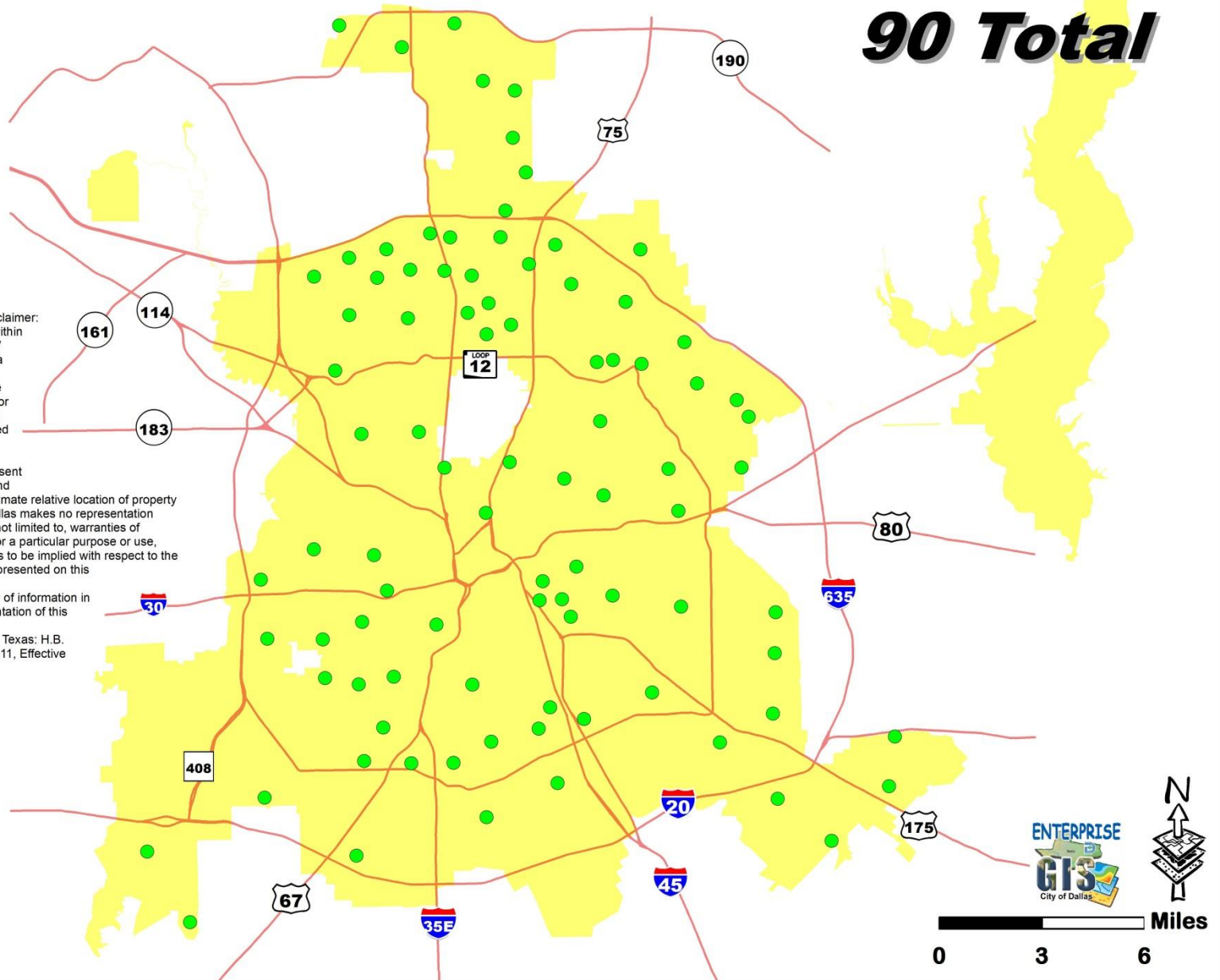
90 Total

City of Dallas GIS Map Disclaimer:

The accuracy of this data within this map is not to be taken / used as data produced by a Registered Professional Land Surveyor for the State of Texas.* This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. The City of Dallas makes no representation of any kind, including, but not limited to, warranties of merchantability or fitness for a particular purpose or use, nor are any such warranties to be implied with respect to the accuracy information/data presented on this map.

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City of Dallas GIS* State of Texas: H.B. 1147 (W. Smith) – 05/27/2011, Effective on 09/01/2011



Environmental Mitigation

Use of EPA-approved products to reduce larvae populations (larvicide)

- Insecticide used specifically for the larval life stage of a mosquito
- Used in breeding sites (abandoned pools, bird baths, tires, any areas that have standing water, etc.)
- Mosquito Dunks are a form of larvicide
- Does not kill adult mosquitoes

Environmental Mitigation

Use of EPA-approved products to reduce mosquito populations (adulticide)

- The City uses Pyrethroid (Aqualuer 20-20) for ground spraying
- Product is mixed with water

Spray & Notification

Spray Guidelines for WNV

- Trap locations with “high trap count”
- Mosquito pool has tested positive for WNV – ½ mile radius
- Confirmed human case of WNV in the City of Dallas and positive mosquito pool in the same area
 - Team will investigate the area of the human case to identify any breeding sites/sources
 - Multiple human cases of WNV within ½ mile radius

Spray & Notification

Spray Guidelines for CHIKV

- Confirmed human case in the City of Dallas by State Health lab
- Team will investigate the area of the human case
- Travel or locally acquired
- Spray radius based on surveillance

Spray & Notification

Spray Guidelines

- WNV
 - Spray between 9:00 PM and 5:00 AM
 - Spray activities begin within 5-7 hours after notification by lab
- CHIKV
 - Spray activities based on surveillance
 - Spray during the day
- “Do not Spray” list

Spray & Notification

Impact of delayed notification

- It takes 7-10 days for a mosquito to complete its life cycle from egg to adult mosquito
- Traps set on Mon/Tue, collected Wed/Thu and results on Thu/Fri
- Additional delays may result in higher mosquito populations



Spray & Notification

Notification

- Signs posted in the area to be sprayed (day time spraying of storm water inlets & CHIKV)
- Radio Ads begin in May
 - Announce start of mosquito season
 - Emphasize the 4-D's
 - Spray guidelines
- News release of spray activities
- Spray activity maintained on the City of Dallas website

Additional Preparedness Efforts

WNV & CHIKV Action Threshold Plans

- Joint plan with Dallas County that allows for uniform response for public information, education, testing, and spraying efforts
- Phased response plan for public education, mitigation and surveillance efforts based on increasing risk of infections

Exhibits

Exhibit A – WNV Action Threshold

Risk Level One – Normal Response		
<i>Conditions: Probability of human outbreak is low (Year-round status in the absence of escalating triggers)</i>		<i>Trigger: Normal mosquito activity; no infected mosquitoes detected</i>
Surveillance	Information/Education	Control Measures
<ul style="list-style-type: none"> Routine mosquito surveillance Monitor larval and adult mosquitoes Test adult mosquitoes for disease 	<ul style="list-style-type: none"> Public education and community outreach programs focused on risk potential, personal protection and residential source reduction 	<ul style="list-style-type: none"> Source reduction through physical and environmental measures Larvicides and biological (mosquito fish)
Risk Level Two – Public Health Advisory		
<i>Conditions: Probability of human outbreak is moderate</i>		<i>Trigger: Virus detected in mosquitoes</i>
Surveillance	Information/Education	Control Measures
<ul style="list-style-type: none"> Expand mosquito surveillance in areas of positive traps 	<ul style="list-style-type: none"> Public health advisory released Continue to emphasize source reduction, personal protection and symptomology to the public Post scheduled truck treatments 	<ul style="list-style-type: none"> Ideally, truck ULV adulticide applications multiple times / week around positive trap location for up to one month, with continued mosquito surveillance Larvicide around virus detected traps
Risk Level Three – Public Health Warning		
<i>Conditions: Probability of human outbreak is high</i>		<i>Trigger: Multiple mosquito traps from different dates and locations; and/or confirmed human case(s)</i>
Surveillance	Information/Education	Control Measures
<ul style="list-style-type: none"> Expand surveillance activities Trap in area of confirmed human cases 	<ul style="list-style-type: none"> Public health warning released Warn the general public of the probability of disease and provide guidance 	<ul style="list-style-type: none"> Calibrate truck ULV adulticide at mid to maximum label rate Continue truck applications in response to positive traps and expand areas as needed Truck ULV application if infected mosquitoes are trapped in areas of confirmed human case(s) Contact vendor for possible aerial treatment(s)
Risk Level Four – Public Health Emergency		
<i>Conditions: Human outbreak is confirmed</i>		<i>Trigger: Increased human cases confirmed with continued and/or increased number of positive traps</i>
Surveillance	Information/Education	Control Measures
<ul style="list-style-type: none"> Continued mosquito surveillance in areas of confirmed human cases 	<ul style="list-style-type: none"> Public health emergency released Declaration of public health emergency/distribution of emergency alerts 	<ul style="list-style-type: none"> Continue truck ULV applications in areas of clustered human cases and positive mosquito traps Schedule aerial adulticide application in targeted zones for potential treatment
<ul style="list-style-type: none"> Once a sample positive for WNV has been identified, Dallas County Mosquito Control will notify the city the trap originated in and schedule a ground spraying mission within the MMA. All ground spraying missions will be conducted as soon as possible following positive confirmation and will be executed between 9 p.m. and 5 a.m. <p style="text-align: right; margin: 0;"><i>*Updated January 8, 2015</i></p>		

M. WNV Action Thresholds

Exhibit B – CHIKV Action Threshold

M. CHIKV Action Thresholds	Risk Level One – Normal Response		
	<i>Conditions: Probability of human outbreak is low (Year-round status in the absence of escalating triggers)</i>		<i>Trigger: Normal mosquito activity with no evidence of CHIKV activity</i>
	Surveillance	Information/Education	Control Measures
	<ul style="list-style-type: none"> Routine monitoring of CHIKV cases by DCHHS Epidemiology Division Monitor larval and adult mosquito bionomics (dip counts and trap surveillance) Identify mosquito samples testing for CHIKV 	<ul style="list-style-type: none"> Public education and community outreach programs focused on risk potential, personal protection and residential source reduction 	<ul style="list-style-type: none"> Source reduction through physical and environmental measures Biological – mosquito fish Larvicides (surface oils, biorational bacterial products and insect growth regulators)
	Risk Level Two – Public Health Advisory		
	<i>Conditions: Probability of outbreak is moderate</i>		<i>Trigger: Imported / travel human cases</i>
	Surveillance	Information/Education	Control Measures
	<ul style="list-style-type: none"> Deploy BG Sentinel traps 	<ul style="list-style-type: none"> Public health advisory released Advise the public and emphasize source reduction, personal protection and disease symptoms Notify Police and Fire Departments of scheduled treatments 	<ul style="list-style-type: none"> Structural-barrier backpack sprayer treatment Source reduction, larvicide and thermal fog control Ground-based ULV adulticide applications
	Risk Level Three – Public Health Warning		
	<i>Conditions: Probability of outbreak is high</i>		<i>Trigger: Locally acquired case or CHIKV isolated from mosquito traps</i>
	Surveillance	Information/Education	Control Measures
	<ul style="list-style-type: none"> Deploy BG Sentinel traps 	<ul style="list-style-type: none"> Public health warning released Warn the general public of the probability of disease and provide guidance 	<ul style="list-style-type: none"> Same as Risk Level Two Contact vendor for possible aerial treatment(s)
Risk Level Four – Public Health Emergency			
<i>Conditions: Human outbreak is confirmed</i>		<i>Trigger: Multiple human cases confirmed and detection of increased or continued CHIKV infected mosquitoes</i>	
Surveillance	Information/Education	Control Measures	
<ul style="list-style-type: none"> Continued mosquito surveillance in areas of confirmed human cases or mosquito traps 	<ul style="list-style-type: none"> Public health emergency considered Declaration of public health emergency/distribution of emergency alerts 	<ul style="list-style-type: none"> Continue adulticide applications in areas of clustered human cases or mosquito traps Recommend aerial adulticide applications in targeted areas 	

Dallas County Presentation

DCHHS

CHIKV Prevention Campaign

March 23, 2015

Zachary Thompson

Director

Dallas County Health and Human Services

Dr. Christopher Perkins

Medical Director/Health Authority

Dallas County Health and Human Services

Public Awareness

- Website, materials, social media, press releases, media interviews, health advisories

Dallas County Health & Human Services
Safe families, healthy lives.

Friday, February 6, 2015

Chikungunya

Chikungunya virus (CHIKV) is transmitted to people by mosquitoes. The virus causes high fever and severe joint pain that start suddenly. It can also cause headache, muscle pain and rash. CHIKV does not often result in death, but the symptoms can be disabling, and some people may get severe complications. There is no specific medication available to treat CHIKV and there is not a vaccine to prevent CHIKV. Avoiding mosquito bites is the key to avoid CHIKV.

DCHHS advises the public to use the '4Ds' to help reduce the chance of being bitten by a mosquito.

- DEET** All Day, Every Day: Whenever you're outside, use insect repellents that contain DEET, picaridin or oil of lemon eucalyptus.
- DRESS:** Wear long, loose and light-colored clothing outside.
- DRAIN:** Remove all areas of standing water in and around your home.
- DUSK & DAWN:** Limit outdoor activities during dusk and dawn hours when mosquitoes are most active.

Number of individuals confirmed with CHIKV in Dallas County: 11*

* All confirmed cases have been imported. There are currently no reports of locally-acquired CHIKV in Dallas County. The numbers reflect information at the time of publishing and are subject to change. DCHHS will report additional numbers as they are received. Although no local spread has yet to be reported in Texas, imported cases make local spread possible because the mosquitoes that can transmit the virus are found locally.

DCHHS CHIKV Brochure in English
DCHHS CHIKV Brochure in Spanish

DCHHS CHIKV Fact Sheet in Various Languages

American	Nepali
Arabic	Russian
English	Spanish
Farsi	Swahili
Hindi	Urdu

DCHHS CHIKV Health Advisory
DCHHS CHIKV Guidance for Churches and Other Faith-Based Organizations Concerning Mosquito-Borne Disease During Travel
CDC CHIKV Fact Sheet
CDC Flyer for Inbound Travelers in English
CDC Flyer for Inbound Travelers in Spanish

For general questions or for more information about Dallas County Health and Human Services, please email Director Zachary Thompson at zthompson@dallascounty.org.

Zachary S. Thompson
Director

Christopher Perkins, D.O., M.P.H.
Medical Director / Health Authority

Last Updated: 02/02/2015

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2377 North Stemmons Freeway, Dallas, Texas 75207-2710 | 214-819-2000

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CHIKUNGUNYA VIRUS



Aedes albopictus

The *Aedes aegypti* and *Aedes albopictus* are aggressive daytime biters, with peak feeding activity at dawn and dusk.



Aedes aegypti



DCHHS
Safe families, healthy lives.

Dallas County Health & Human Services
2377 N. Stemmons Freeway
Dallas, Texas 75207
(214) 819-2000

Zachary Thompson



DALLAS COUNTY
DEPARTMENT OF HEALTH AND HUMAN SERVICES
EPIDEMIOLOGY

Zachary Thompson
Director

Dr. Christopher Perkins
Health Authority/ Medical Director

From: Jessica Smith, MPH, Sonya Hughes, MPH, Epidemiologists
Wendy Chung, MD, Chief Epidemiologist

To: Dallas County Medical Providers and Laboratory Staff

Date: July 22, 2014

HEALTH ADVISORY: Chikungunya

Dallas County Health and Human Services (DCHHS) has confirmed Dallas County's first travel-associated human case of chikungunya for 2014. The patient recently returned to Dallas County from a trip to the Caribbean where the chikungunya virus has been causing large outbreaks of human disease since late 2013. To date, 7 travel-associated chikungunya cases have been reported in Texas. Although no local spread has yet been reported in Texas, imported cases make local spread possible because the mosquitoes that can transmit the virus are found locally.

Clinicians should maintain a high index of suspicion for chikungunya virus in patients with acute onset of fever and polyarthralgia who have recently traveled to the Caribbean. The incubation period is typically 3–7 days (range, 2–12 days). In addition to severe joint pains, other symptoms may include headache, myalgia, arthritis, or rash. Persons at risk for more severe disease include neonates (aged <1 month) exposed in utero, older adults (e.g., ≥65 years), and persons with underlying medical conditions (e.g., hypertension, diabetes, or cardiovascular disease).

Testing for chikungunya is currently available through one commercial laboratory, Focus Diagnostics. Serum can be tested by RT-PCR to detect viremia within the first 8 days of illness, and/or by serology to detect IgM and IgG after the first 4 days after illness onset. Test results can be confirmed through public health laboratories. Because of similar symptoms, persons with suspected chikungunya infections or possible dengue infection.

For more information about chikungunya to our health department by fax (214) 819-2004.

Information about chikungunya include:

to Clinicians: Recognizing, Managing and Reporting Chikungunya
3/13): <http://emergency.cdc.gov/han/han00358.asp>

Notice: Chikungunya in the Caribbean (7/1/14):

travel/notice/watch/chikungunya-saint-martin

Healthcare Providers (July 2014):

chikungunya/pdfs/CHIKV_Clinicians.pdf

Office: 214-819-2056
Fax: 214-819-1933

CHIKV Action Thresholds

Dallas County Health & Human Services
Arbovirus Control Measures

Dallas County Mosquito Control
Standard Operating Procedures

Risk Level One – Normal Response			
<i>Conditions: Probability of human outbreak is low (Year-round status in the absence of escalating triggers)</i>		<i>Trigger: Normal mosquito activity with no evidence of CHIKV activity</i>	
<i>Surveillance</i>	<i>Information/Education</i>	<i>Control Measures</i>	
<ul style="list-style-type: none"> Routine monitoring of CHIKV cases by DCHHS Epidemiology Division Monitor larval and adult mosquito bionomics (dip counts and trap surveillance) Identify mosquito samples testing for CHIKV 	<ul style="list-style-type: none"> Public education and community outreach programs focused on risk potential, personal protection and residential source reduction 	<ul style="list-style-type: none"> Source reduction through physical and environmental measures Biological – mosquito fish Larvicides (surface oils, biorational bacterial products and insect growth regulators) 	
Risk Level Two – Public Health Advisory			
<i>Conditions: Probability of outbreak is moderate</i>		<i>Trigger: Imported / travel human cases</i>	
<i>Surveillance</i>	<i>Information/Education</i>	<i>Control Measures</i>	
<ul style="list-style-type: none"> Deploy BG Sentinel traps 	<ul style="list-style-type: none"> Public health advisory released Advise the public and emphasize source reduction, personal protection and disease symptoms Notify Police and Fire Departments of scheduled treatments 	<ul style="list-style-type: none"> Structural-barrier backpack sprayer treatment Source reduction, larvicide and thermal fog control Ground-based ULV adulticide applications 	
Risk Level Three – Public Health Warning			
<i>Conditions: Probability of outbreak is high</i>		<i>Trigger: Locally acquired case or CHIKV isolated from mosquito traps</i>	
<i>Surveillance</i>	<i>Information/Education</i>	<i>Control Measures</i>	
<ul style="list-style-type: none"> Deploy BG Sentinel traps 	<ul style="list-style-type: none"> Public health warning released Warn the general public of the probability of disease and provide guidance 	<ul style="list-style-type: none"> Same as Risk Level Two Contact vendor for possible aerial treatment(s) 	
Risk Level Four – Public Health Emergency			
<i>Conditions: Human outbreak is confirmed</i>		<i>Trigger: Multiple human cases confirmed and detection of increased or continued CHIKV infected mosquitoes</i>	
<i>Surveillance</i>	<i>Information/Education</i>	<i>Control Measures</i>	
<ul style="list-style-type: none"> Continued mosquito surveillance in areas of confirmed human cases or mosquito traps 	<ul style="list-style-type: none"> Public health emergency considered Declaration of public health emergency/distribution of emergency alerts 	<ul style="list-style-type: none"> Continue adulticide applications in areas of clustered human cases or mosquito traps Recommend aerial adulticide applications in targeted areas 	

M. CHIKV Action Thresholds

Protect against Chikungunya Virus!

IMPORTANT HEALTH MESSAGE FROM DALLAS COUNTY HEALTH AND HUMAN SERVICES

Chikungunya virus (CHIKV) is transmitted to people by mosquitoes. The most common symptoms of CHIKV are fever and joint pain. Other symptoms may include headache, muscle pain, joint swelling or rash. CHIKV does not often result in death, but the symptoms can be disabling, and some people may get severe complications.

There is no specific medication to treat CHIKV and there is not a vaccine. Using medicines (other than aspirin) to lower your fever and joint pain may help. Consult a doctor.

If you think you may have CHIKV:

- Record your symptoms and see a doctor.
- Protect yourself against further mosquito bites.
- If you are sick with CHIKV, avoiding bites will help to protect others from getting sick.

The best way to avoid CHIKV is to avoid mosquito bites.



Zachary Thompson, Director

Defend by using the 4Ds

DEET All Day Every Day

- Whenever you're outside, use insect repellents that contain DEET or other EPA approved repellents and follow instructions.

Dress

- Wear long, loose and light-colored clothing outside.

Drain

- Remove all standing water in and around your home.
- Empty, remove, cover or turn upside

¡Protección contra el virus de Chikungunya!

MENSAJE DE SALUD IMPORTANTE DE DALLAS COUNTY HEALTH AND HUMAN SERVICES

El virus Chikungunya (CHIKV) es transmitido a las personas por medio de los mosquitos. Los síntomas más comunes del CHIKV son la fiebre y el dolor articular. Otros síntomas pueden incluir dolor de cabeza, dolor muscular, hinchazón articular o sarpullido. El CHIKV no suele resultar en la muerte, pero los síntomas pueden ser incapacitantes, y en algunas personas puede resultar en complicaciones severas.

No existe medicamento específico alguno para tratar el CHIKV ni vacunación para prevenir el CHIKV. Podrá ayudar el uso de ciertos medicamentos (excepto aspirina) para reducir su fiebre y dolor articular. Consulte a un médico.

Si piensa que ha contraído el CHIKV:

- Registre sus síntomas y consulte a su médico.
- Protéjase en contra de picaduras de mosquitos adicionales.
- Si está enfermo debido al CHIKV, el evitar las picaduras ayudará a proteger a otros de la enfermedad.

Deféndase aplicando las siguientes

DEET Todo el día cada día

- Siempre que se encuentre afuera, utilice repelentes de insectos que contengan DEET u otros repelentes aprobados por la EPA y siga las instrucciones correspondientes.

Dress (Vistase)

- Use vestimentas largas, sueltas y de color ligero afuera.

Drain (Drenar)

- Remueva toda el agua estancada en y alrededor de su casa.
- Vacíe, remueva, cubra o voltee cualquier contenedor que pudiera sostener agua estancada (botellas, latas, llantas, cubetas, macetas, etc.).
- Cambie el agua de los platos de su mascota, piscina portátil y bañeras de pájaros varias veces a la semana.

Dusk & Dawn (Amancer Y Anochecer)

- Limite las actividades al aire libre durante el amanecer y el anochecer cuando los mosquitos se encuentran mas activos.



Zachary Thompson, Director

Dr. Christopher Perkins, Medical Director/Health Authority

RECENTLY IN THE AMERICAN TROPICS?

MOSQUITOES spread diseases such as **CHIKUNGUNYA** and **DENGUE**.

Watch for fever with joint pains or rash in the next 2 weeks.

2 WEEKS

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

If you get sick, see a doctor.

¿ESTUVO HACIENDO POCO EN EL CARIBE?

Los MOSQUITOS contagian enfermedades como la **CHIKUNGUNYA** y el **DENGUE**.

Preste atención a si tiene fiebre con dolor articular o una erupción durante las 2 semanas siguientes al viaje.

2 SEMANAS

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

Si se encuentra mal, acuda a un médico. Digale al médico que ha estado en el Caribe.

Para obtener más información llame al 800-CDC-INFO (232-4636) o visite www.cdc.gov/travel.

CHIKUNGUNYA VIRUS



Aedes albopictus

The *Aedes aegypti* and *Aedes albopictus* are aggressive daytime biters, with peak feeding activity at dawn and dusk.



Aedes aegypti



DCHHS
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Dallas County Health and Human Services
Environmental Health Division
2377 N. Stemmons Freeway
Dallas, Texas 75207
(214) 819-2115

Zachary Thompson, Director

El *Aedes aegypti* y *Aedes albopictus* son mordedores agresivos de día, con la actividad de alimentación pico al amanecer y al anochecer.



Aedes aegypti



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